

WHAT IS CLAIMED IS:

1. A method for forming an apparatus configured to reduce electromagnetic interference between a pair of antennas coupled to a wireless communication device,
5 wherein the method comprises:

extracting a shape of the apparatus from a thin sheet of conductive material; and

10 folding the shape into a plurality of resonant circuit elements, each configured to
resonate at or near a carrier frequency of a signal transmitted by one of
the pair of antennas.

2. The method of claim 1, wherein a process of extracting the shape from the thin
sheet of conductive material is selected from a group comprising stamping and laser or
15 chemical etching.

3. The method of claim 2, wherein the conductive material comprises a relative
permittivity value of about 0.0 F/m to about 1.0 F/m and a relative permeability value of
about 10 H/m to about 100,000 H/m.

- 20 4. The method of claim 2, wherein the conductive material comprises a metal
selected from a group comprising iron (Fe), copper (Cu), gold (Au), silver (Ag), tin (Sn),
and nickel (Ni), or a metal alloy selected from a group comprising beryllium copper
(BeCu), phosphor bronze (Ph+Cu/Zn/Sn), magnesium alloys (Mg/Al/O) and steel (Fe/C).

- 25 5. The method of claim 2, wherein the conductive material comprises a primarily
ferrous-based material.

6. The method of claim 1, wherein the plurality of resonant circuit elements
30 comprise a plurality of rectangular elements connected to and arranged above a
common reference plane by a plurality of vertical segments, wherein the plurality of
rectangular elements and the common reference plane comprise capacitive portions,
and the plurality of vertical segments comprise inductive portions, of the plurality of
resonant circuit elements.

7. The method of claim 6, wherein the method further comprises arranging a dielectric material between the plurality of rectangular elements and the common reference plane.

5 8. The method of claim 1, wherein the plurality of resonant circuit elements comprise a plurality of A-shaped elements separated by a plurality of horizontal segments, wherein flat surfaces of the A-shaped elements comprise capacitive portions, and bent portions of the A-shaped elements comprise inductive portions, of the plurality of resonant circuit elements.

10 9. The method of claim 1, wherein the plurality of resonant circuit elements comprise a plurality of relatively long domed elements spaced apart by a plurality of relatively thin slots, and wherein the slots comprise capacitive portions, and the domed elements comprise inductive portions, of the plurality of resonant circuit elements.

15 10. A method for forming an apparatus configured to reduce electromagnetic interference between a pair of antennas coupled to a wireless communications device, wherein the method comprises:

20 providing a mold having various cavities within which the apparatus is to be formed; and

inserting a liquefied substance into the mold for filling the various cavities and forming a plurality of resonant circuit elements, each configured to
25 resonate at or near a carrier frequency of a signal transmitted by one of the pair of antennas.

11. The method of claim 10, wherein the step of inserting a liquefied substance comprises pouring or injecting a liquefied metal or metal-alloy into the mold.

30 12. The method of claim 11, wherein the metal or metal-alloy is selected from a group comprising iron (Fe), copper (Cu), gold (Au), silver (Ag), tin (Sn), nickel (Ni), beryllium copper (BeCu), phosphor bronze (Ph+Cu/Zn/Sn), magnesium alloy (Mg/Al/O) and steel (Fe/C).

13. The method of claim 11, wherein the metal or metal-alloy comprises a primarily ferrous based material.

14. The method of claim 11, wherein the step of inserting a liquefied substance
5 comprises pouring the liquefied substance into the mold and curing the liquefied substance in accordance with a cast molding process.

15. The method of claim 11, wherein the step of inserting a liquefied substance
10 comprises injecting the liquefied substance into the mold and curing the liquefied substance in accordance with a transfer molding process, an injection molding process, or an extrusion molding process.

16. The method of claim 11, wherein the plurality of resonant circuit elements
15 comprise a plurality of vertical elements spaced apart from one another and periodically coupled to a common reference plane at various locations, and wherein spacings between the plurality of vertical elements comprise capacitive portions, and the various locations comprise inductive portions, of the plurality of resonant circuit elements.

17. The method of claim 16, wherein the method further comprises arranging a
20 dielectric material within each of the spacings.

18. The method of claim 11, wherein the plurality of resonant circuit elements
25 comprise a plurality of relatively long domed elements spaced apart by a plurality of relatively thin slots, and wherein the slots comprise capacitive portions and the molded domed elements comprise inductive portions of the plurality of resonant circuit elements.

19. The method of claim 18, wherein the method further comprises arranging a dielectric material within each of the relatively thin slots.

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20. A method for forming an apparatus, which is configured to reduce electromagnetic interference between a pair of antennas coupled to a wireless communications device, wherein the method comprises:

5 selecting a material to be used in forming the apparatus, wherein the material is selected from a group of primarily ferrous-based materials; and

 forming the apparatus as a plurality of resonant circuit elements, wherein the plurality of resonant circuit elements are formed in a linear or array
10 pattern and configured to resonate at or near a carrier frequency of a signal transmitted by a first antenna, and wherein a length of the apparatus is formed approximately equal to one-half of a wavelength of the transmitted signal for scattering about half of the transmitted signal energy in one direction, and another half of the transmitted signal energy
15 in a substantially opposite direction, to reduce the electromagnetic interference at a second antenna.

21. The method of claim 20, wherein the step of selecting a material comprises selecting a ferrous-based material.

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22. The method of claim 21, wherein the step of forming the apparatus comprises extracting a shape of the apparatus from a thin sheet of the selected ferrous-based material, and folding the shape into the plurality of resonant circuits.

25 23. The method of claim 21, wherein the step of forming the apparatus comprises heating the selected ferrous-based material until the material is liquefied, and pouring or injecting the liquefied ferrous-based material into a mold used to form the apparatus.

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